

CLAMP CIRCUIT WITH FUSE OPTIONS

Abstract of the Disclosure

A voltage control circuit provides a test supply voltage during manufacturing and testing of a semiconductor device and provides an operational supply voltage after certification of the semiconductor device. The operational supply voltage is lower than the test supply voltage. The voltage control circuit includes a clamp circuit having a plurality of voltage regulation devices, typically diodes. The voltage regulation devices control an output of the clamp circuit. A voltage regulator is electrically coupled to the clamp circuit and generates a first control signal based upon the output of the clamp circuit. A charge pump then receives the control signal from the voltage regulator, and, based on the value of the control signal, the charge pump generates the test supply voltage. At least one bypass device is connected to at least one of the plurality of voltage regulation devices. The bypass device is activated following the certification of the semiconductor device. Once activated, the bypass device bypasses the respective voltage regulation device from the clamp circuit, which limits the output of the clamp circuit. The voltage regulator then generates a second control signal based upon the limited output of the clamp circuit. The second control signal is provided to the charge pump to generate the operational supply voltage.